What is claimed is:

1. A method for growing a dilute nitride film, the method comprising the steps of:

placing a III-V substrate in a chemical reaction chamber;

heating the III-V substrate to a predetermined temperature in a range about 550-700 degree C in an atmosphere including a first Group V element gas or vapor matching the Group V element of the III-V substrate;

flowing vapors of at least one Group III element organometallic compound into the chemical reaction chamber for growing a III-V film in the presence of a second Group V element gas or vapor; and

flowing vapors into the chemical reaction chamber of a Group III element containing compound wherein at least one Group III element is covalently bonded with a Group V element nitrogen (N) to grow dilute nitride films on the III-V substrate.

2. The method of claim 1, wherein the placing step comprises placing the III-V substrate in an OMCVD chamber as the chemical reaction chamber; and

wherein the heating step comprises heating the III-V substrate in the atmosphere including a mixture of a carrier gas and the Group V element gas or vapor.

3. The method of claim 1, wherein the placing step comprises placing the III-V substrate in a CBE chamber or a MOMBE chamber as the chemical reaction chamber.

4. The method of claim 1, wherein the placing step comprises placing a GaAs substrate as the III-V substrate.

5. The method of claim 1, wherein the placing step comprises placing a GaP substrate as the III-V substrate.

6. The method of claim 1, wherein the placing step comprises placing an InAs substrate as the III-V substrate.

7. The method of claim 1, wherein the placing step comprises placing an InP substrate as the III-V substrate.

8. The method of claim 1, wherein the flowing vapors of the Group III element containing compound step comprises flowing vapors containing indium (In) as the Group III element covalently bonded with N to form a part of the Group III compound.

9. The method of claim 1, wherein the flowing vapors of the Group III element containing compound step comprises flowing vapors containing gallium (Ga) as the Group III element covalently bonded with N to form a part of the Group III compound.

10. The method of claim 1, wherein the flowing vapors of the Group III element containing compound step comprises flowing vapors containing aluminum (Al) as the Group III element covalently bonded with N to form a part of the Group III compound.

11. The method of claim 1, wherein the flowing vapors of the Group III element containing compound step comprises flowing vapors containing indium (In) and gallium (Ga) as the Group III elements having at least In covalently bonded with N to form a part of the Group III compound.

12. The method of claim 1, wherein the flowing vapors of the Group III element containing compound step comprises flowing vapors containing indium (In) and aluminum (Al) as the Group III elements having at least In covalently bonded with N to form a part of the Group III compound.

13. The method of claim 1, wherein the flowing vapors of the Group III element containing compound step comprises flowing vapors containing gallium (Ga) and aluminum (Al) as the Group III elements having at least Al covalently bonded with N to form a part of the Group III compound.

14. The method of claim 1, wherein the flowing vapors of the Group III element containing compound step comprises flowing vapors containing gallium (Ga), indium (In), and

aluminum (Al) as the Group III elements having at least In covalently bonded with N to form a part of the Group III compound.

15. The method of claim 1, further comprising the step of cooling-down the III-V substrate having the dilute nitride film growth.

16. The method of claim 1, wherein the first and second Group V element gas or vapor contains at least one different Group V element.

17. The method of claim 1, wherein the first and second Group V element gas or vapor contains the same Group V element.

18. The method of claim 1, wherein the flowing vapors of the Group III element containing compound with the Group III element covalently bonded to N and the at least one Group III element organometallic compound step comprises flowing into the reaction chamber the vapors of the Group III element containing compound in a volume ratio of less than 15% to the 85% of the volume of the at least one Group III element organometallic compound.

19. A method for growing a III-V alloy containing at least 3 elements, the method comprising the steps of:

placing a GaAs substrate in an OMCVD chamber;

heating the GaAs substrate to a predetermined temperature in a range about 550-700 degree C in a mixture of a first Group V element gas or vapor and a carrier gas, wherein the carrier gas is selected from a group consisting of hydrogen, nitrogen, argon, helium, hydrogen and nitrogen, hydrogen and argon, and hydrogen and helium;

flowing vapors of at least one Group III element organometallic compound into the OMCVD chamber for growing a III-V film in the presence of a second Group V element gas or vapor; and

flowing vapors into the OMCVD chamber of a Group III element containing compound wherein at least one Group III element is covalently bonded with a Group V element nitrogen (N) to grow dilute nitride films on the III-V substrate.

20. A method for growing a dilute nitride film, the method comprising the steps of:

placing a GaAs substrate in an OMCVD chamber;

heating the GaAs substrate to a predetermined temperature in a range about 550-700 degree C in a mixture of hydrogen and a Group V element gas or vapor selected from a group consisting of arsine, tertiarybutylarsine, triethylarsine, alkyl arsine, phosphine, tertiarybutylphosphine, triethylphosphine, alkyl phosphine, and trimethylantimony;

flowing vapors of at least one Group III element organometallic compound containing a material selected from a group consisting of Trimethylgallium, Triethylgallium, Trimethylindium, Trimethylaluminum, and Trimethylboron in the presence of a second Group V element gas or vapor for growing a III-V film;

flowing vapors into the OMCVD chamber to grow dilute nitride films on the GaAs substrate of a Group III element containing compound, wherein at least one Group III element is covalently bonded with a Group V nitrogen (N), and the Group III element is selected from a group consisting of In, Ga, Al, Ga and Al, In and Ga, Ga and Al, and Ga, Al, and In;

cooling-down the GaAs substrate having the dilute nitride film growth in the presence of a third Group V element gas or vapor for preventing decomposition of the dilute nitride film; and

flowing vapors of nitrogen containing compound gas or vapor during the growth steps, and the cooling-down step using a material selected from a group consisting of dimethylhydrazine, ammonia, trimethylamine, alkylamine, and nitrogen trifluoride for preventing decomposition of the dilute nitride film due to a departure of nitrogen.